Testimony of Daniel G. Weaver, Ph.D.

before the

Subcommittee on Capital Markets, Insurance, & Government Sponsored Enterprises

May 18, 2004

I have taught market microstructure since 1980 and have over 25 published articles most of which examine the impact of rule changes on markets. I have done work on market transparency, tick sizes, and consolidation rules, among other topics. My work has been presented at academic and professional meetings around the world. I have regular dialogs with a number of securities exchange leaders both domestic and foreign. The press routinely consults me as an expert on market microstructure. Therefore, I feel I am well qualified to opine on the proposed market regulation changes.

Let me state unequivocally that I am against the repeal of the trade through rule. If the rule is repealed, it will further fragment our markets and hurt investors. It would be a large step backward in the modernization of US markets, effectively taking us back to pre-Manning Rule days. The history of the Manning Rules has reverse parallels to the proposed repeal of the trade through rule. Prior to Manning I (enacted in 1994), NASDAQ dealers could simply ignore customer limit orders. Customers learned that limit orders were not executed and did not submit them. Manning I prevented NASDAQ dealers from trading through customer limit orders at better prices – much like current trade through rules do today. However, after the passage of Manning I, NASDAQ dealers could still trade at the same price as customer limit orders they held – that is there was no public order priority rule. Customers were still reluctant to submit limit orders. Manning II gave public limit orders priority, but only within a dealer firm. In other words, a customer submitting a limit order to Dealer X could still see trades occurring at other dealers at the same price as the customer's limit order. Thus, Manning II still discouraged public limit order submission.

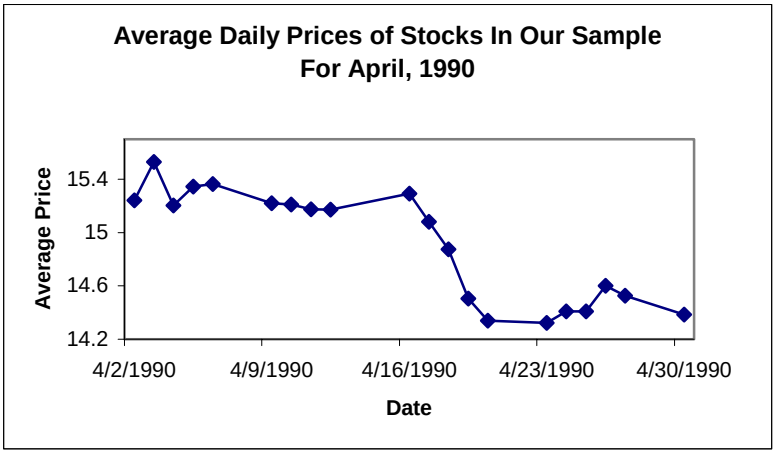
It took the Order Handling Rules (OHR), enacted in early 1997, to unleash the potential of public limit orders. After the OHR, spreads dropped dramatically. ECNs which display customer limit orders grew in market share from around 20% to 80% today. ECNs allow public limit orders to compete with NASDAQ market maker quotes. The lesson is clear. If limit orders stand a chance of execution, they will be submitted and can then become an important source of liquidity for markets.

Limit orders are shock absorbers for liquidity events. Without limit orders to absorb trades

from liquidity demanders, large orders will increasingly push prices away from current prices.[1] While it may be argued that price impact is a fact of life for institutions, I am more concerned about the small trader that submits an order in the same direction, but just behind the large order. The small order will execute at an inferior price before sufficient liquidity can be sent to the market by traders. It can then be seen that thin markets are more susceptible to liquidity event volatility than deeper markets.[2]

Repeal of the trade-through rule then will take us back to pre-Manning Rule days. It will discourage limit order submission and in turn increase volatility in affected stocks. This will result in higher effective execution costs for the average investor. A few large players will benefit, but it will be at the expense of the majority of long term investors. It has been shown, time and time again that investors factor execution costs into their required cost of supplying funds to firms.[3] Therefore, higher execution costs will translate into higher costs of capital for firms and stock prices will fall. This will make it more difficult to raise capital and hence provide a drag on the economy.

The figure below illustrates the relationship between execution costs and stock prices.[4] On April 11, 1990 the Toronto Stock Exchange enacted rules that resulted in effective execution costs rising by about 0.25 percentage points. Within a week, prices declined by over 6%.



[1] Assume that there are 100 shares offered at $19, 200 at $19.05, 100 at $19.10, and 300 at $19.15. A market order to buy 500 shares will take out the sell orders from $19 to $19.15, leaving the best offer at $19.15 until new offers to sell arrive. This is sometimes referred to at walking the book.
[2] Assume a deeper market of 600 shares offered at $19. Then a 500 share order will not move the price.
[3] See Y. Amihud,, 2002. Illiquidity and stock returns: Cross-sectional and time-series effects. Journal of Financial Markets 5, 31-56; Y. Amihud, and H. Mendelson, 1986. Asset pricing and the bid-ask spread. Journal of Financial Economics 17, 223-250; and Y. Amihud, H. Mendelson, and B. Lauterbach 1997, Market microstructure and securities values: evidence from the Tel Aviv Stock Exchange. Journal of Financial Economics 45, 365-390; among others.
[4] Source A. Madhavan, D. Porter, and D. Weaver, 2004, Should Securities Markets be Transparent?, forthcoming, *Journal of Financial Markets*.

The above impact on prices will likely happen if the trade through rule is repealed. It will set us back 10 years and put us dead last in the modernization of markets among industrial nations. Other nations have seen the value of routing orders based on price. The Toronto Stock Exchange effected rules that require brokers receiving market orders of 5,000 shares or less, to either improve on price or send the order to the TSE for execution against limit orders. Following that action, the affected stocks experienced an immediate increase in depth and reduction in spread.[5] Evidence from US markets finds the same result. When Merrill Lynch decided to stop routing their orders to regional stock exchanges, spreads narrowed and customers obtained better executions.[6] Recently, the EU passed Investment Service Directive 2, which is similar to the TSE concentration rules.

The above are examples of the adage that "liquidity begets liquidity." In other words, limit order traders will submit limit orders where market orders are. It is similar to the fact that the more traffic exists on a highway, the more gas stations will exist. If the traffic goes away, so will the gas stations. Similarly, if market orders get routed away from the venue with the best price, limit orders will leave that venue as well. Going back to the gas station example, it doesn't matter how cheap your gas is – you won't sell much at the back of a dead end street.

If markets want to compete they should do so on price which is the current structure. However, the entire notion of markets competing is problematic. True competition is between natural buyers and sellers. I doubt if any member of the public has ever received a call from the Chicago Stock Exchange asking them to send their orders for NYSE listed stocks there – but their brokers certainly have! We all know the problems associated with preferencing of order flow. There are those that argue that it discourages price competition since quoting better prices does not result in more order flow. Allowing orders to be routed for reasons other than best price will increase the incidence of preferencing – again taking a big step backward in efforts to modernize our markets.

I am generally against allowing traders to give blanket opt-outs of the best-price rule. Most investors don't know their bid from their ask, and I am afraid will quickly agree to allow their brokers to opt-out their accounts. This opens the flood gates to abuse by brokers, undoing years of regulatory mandated improvements in our markets. There may be something to be said for allowing *some* traders to make an informed decision to opt-out on a trade by trade basis. I can see Fidelity opting out of the trade through rule for a trade to sell 50,000 shares of IBM immediately.

---

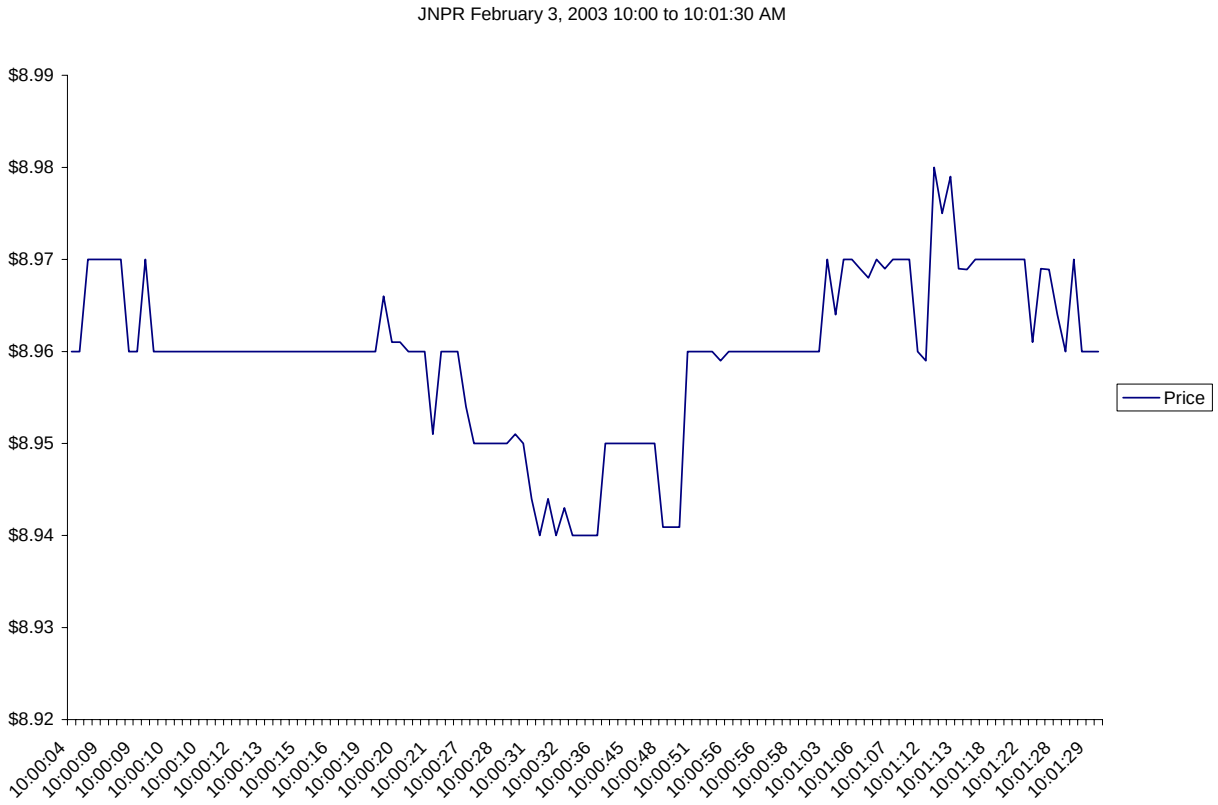
[5] See A. Murphy, Financial Market Consolidation Versus Fragmentation: A Comparative Analyis, unpublished Working Paper, Manhattan College.

[6] See R. Battalio, J. Greene, and R. Jennings, 1998, Order Flow Distribution, Bid–Ask Spreads, and Liquidity Costs: Merrill Lynch's Decision to Cease Routinely Routing Orders to Regional Stock Exchanges, *Journal of Financial Intermediation* 7, 338-358.

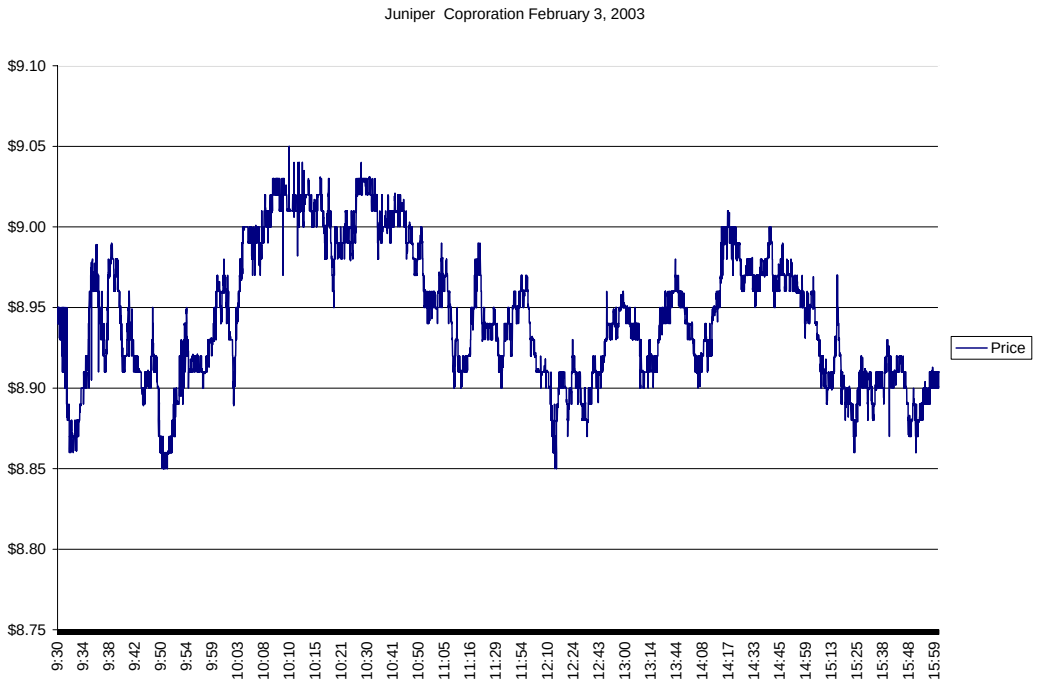
However, I would suggest that this can be accomplished through changes to the rule for block trades. Therefore, I don't really see a need for an opt-out ability. If enough investors opt-out, then market orders will be routed away from current venues and executed at inferior prices. This will discourage limit order traders from providing liquidity, leading to more volatility in the markets, higher execution costs, and higher costs of capital for US firms.

Repealing the trade through rule in listed markets will result in fragmentation similar to that on NASDAQ. The fragmentation of NASDAQ has led to an increased usage of order routers to find liquidity. The creation and sale of order routers is perhaps the biggest growth segment of the securities industry today. Companies like ITG do a big business selling trading firms their order routing services. Now, these order routing developers are not charitable organizations, but for-profit. Therefore, it costs money to find liquidity in the OTC market today. This further adds to execution costs. The traders who need order routers are those that trade frequently – a hedge fund rather than a shopkeeper in New Orleans. Perhaps some brokers will get them as a way to attract clients, but they will have to pass this cost along in the form of higher commissions – again increasing execution costs for the average investor. Therefore, increasing the fragmentation of markets, by allowing opt-outs of the trade through rule will result in higher execution costs - because of the increased cost of finding liquidity.

The most common reason cited for wanting to opt-out of the trade through rule is a desire to get a trade done quickly – perhaps in a second or less. Is this advantageous? Perhaps examining a graph of a random stock on a random day would help. Below is a graph representing all trades in JNPR for February 3, 2003 from 10:00 AM until 10:01:30 AM



It can be seen that getting an order filled at 10:00:51 compared to 10:00:52 may save you $0.02 on that trade. However, if we examine JNPR over the entire day



it can be seen that prices fluctuated by $0.20 over the day, a factor of 10. So price changes over small time increments are much smaller than over longer increments. Then, what type of trader benefits from small price changes and hence need speed? Arbitrageurs and hedge funds. As mentioned earlier, if we allow orders to be routed for other than best price, then limit order traders will reduce the amount of liquidity they supply, increasing execution costs. It can then be seen that this “need for speed” benefits the few at the expense of the many.

With regard to the **proposed ban on sub-penny quoting**, I was one of a number of academics that testified before Congress in support of decimalization. I wish to point out that decimalization does not mean penny ticks – it means quoting in dollars and cents. For example, the Toronto Stock Exchange “decimalized” and adopted nickel ticks for stocks trading above C$5. As studies have shown a small tick encourages stepping-ahead and thus again discourages traders from placing limit orders. These traders do not necessarily exit the market. They merely switch to using market orders and monitor the market more closely – sending in additional liquidity as conditions become favorable.

While it is true that a lower tick will reduce spreads on *some* stocks, this improvement in spread must be balanced against other market quality measures such as depth. Small traders do not necessarily benefit from a narrower quoted spread because increased price volatility may cause an increase in effective spreads. Therefore, I am in favor of a significant tick which balances spread width improvement against liquidity provision. Banning sub-penny quoting ***and trading*** will encourage placement of limit orders since it makes stepping ahead more costly. It will lead to more depth and lower overall execution costs.